Missouri Department of Natural Resources

Total Maximum Daily Load Information Sheet

West Fork Sni-A-Bar Creek

Waterbody Segment at a Glance:

County: Jackson
Nearby Cities: Blue Springs
Length of impairment: 2 miles
Pollutants: Biochemical Oxygen Demand (BOD)
Volatile Suspended Solids (VSS)
Source: Lake Lotawana Lagoon

Note: The current assessment of this stream is 2.5 miles impaired by BOD, based on a water quality survey conducted after the development of the 2002 303(d) List**.**

TMDL Priority Ranking : TMDL Completed 2006

Description of the Problem

Beneficial uses of West Fork Sni-A-Bar Creek

- Livestock and Wildlife Watering
- Protection of Warm Water Aquatic Life
- Protection of Human Health associated with Fish Consumption

Use that is impaired

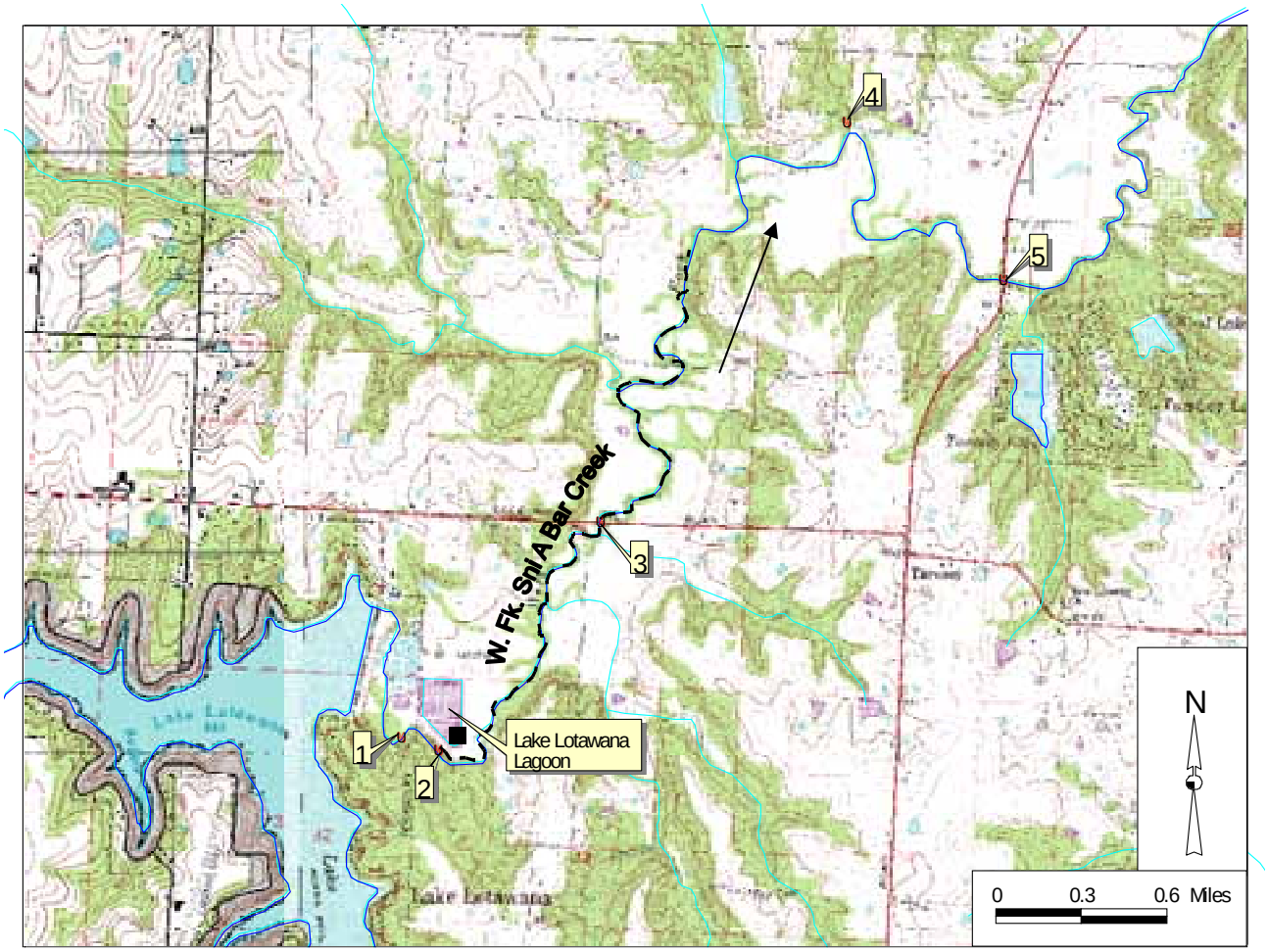
- Protection of Warm Water Aquatic Life

Standards that apply

- The Missouri Water Quality Standard (WQS), found in 10 CSR 20-7.031 Table A, for Dissolved Oxygen (DO) (related to BOD) in streams is 5.0 milligrams per liter (mg/L) or parts per million.
- Standards for Volatile Suspended Solids (VSS) is found in the general criteria section of the WQS, 10 CSR 20-7.031(3)(A) and (C) where it states:
  - Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses.
  - Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses.

Any waterbody that was listed for Non-Filterable Residue (NFR) in 1998, such as West Fork Sni-A-Bar Creek, is now being listed for VSS. This change was made to better distinguish between organic solids coming from wastewater treatment plants (VSS) and mineral solids (soil or mineral particles) coming from soil erosion or erosion of mine waste materials or stockpiles, Non-Volatile Suspended Solids (NVSS).

Impaired Segment of West Fork Sni-A-Bar Creek in Jackson County, Missouri, with Sampling Sites



Impaired segment → Direction of flow

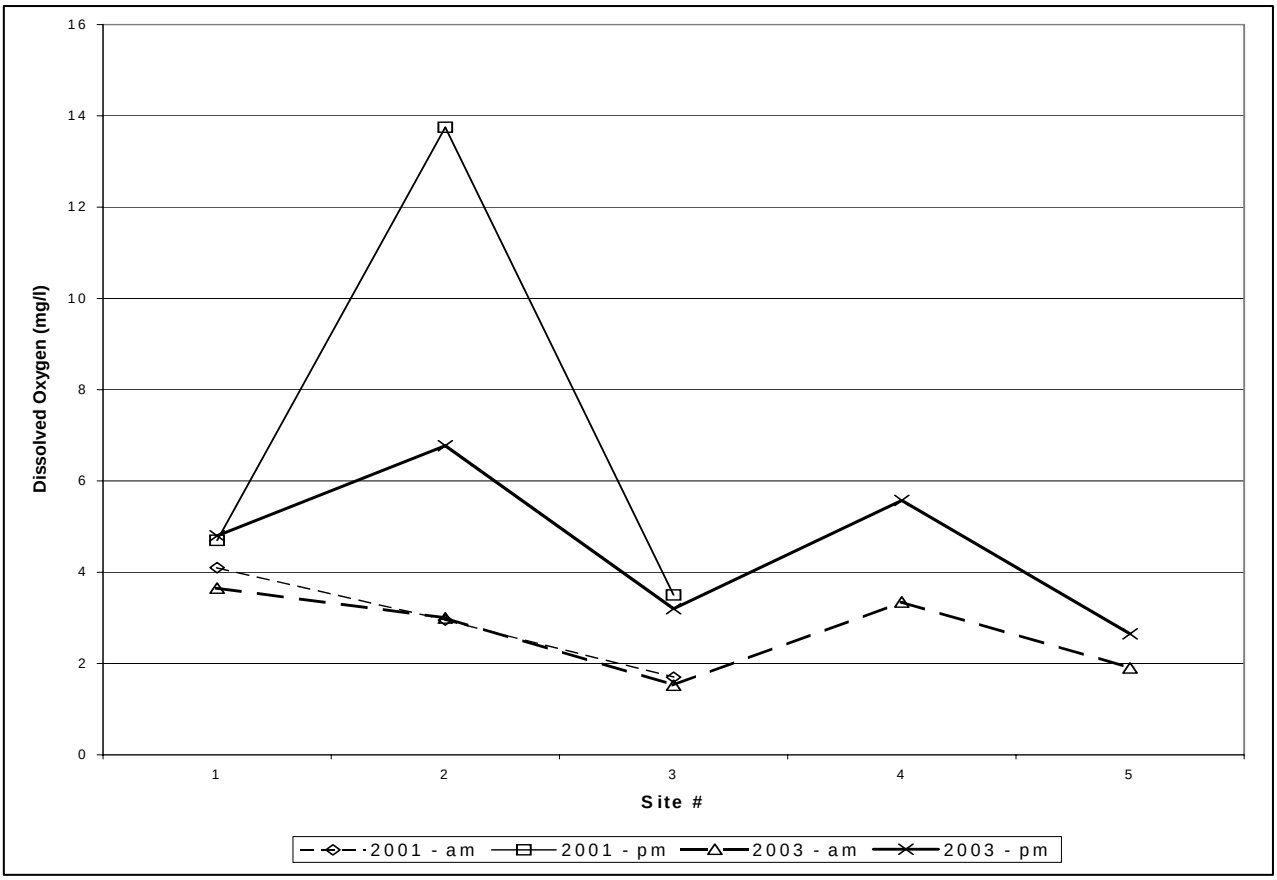
Sampling Site Index

1 – W. Fk. Sni-A-Bar 0.1 mile upstream of Lake Lotawana Lagoon
2 – Lake Lotawana Lagoon Outfall
3 – W. Fk. Sni-A-Bar 1.1 miles downstream of Lake Lotawana Lagoon
4 – W. Fk. Sni-A-Bar 3.2 miles downstream of Lake Lotawana Lagoon
5 – W. Fk. Sni-A-Bar 4.4 miles downstream of Lake Lotawana Lagoon

Background Information and Water Quality Data

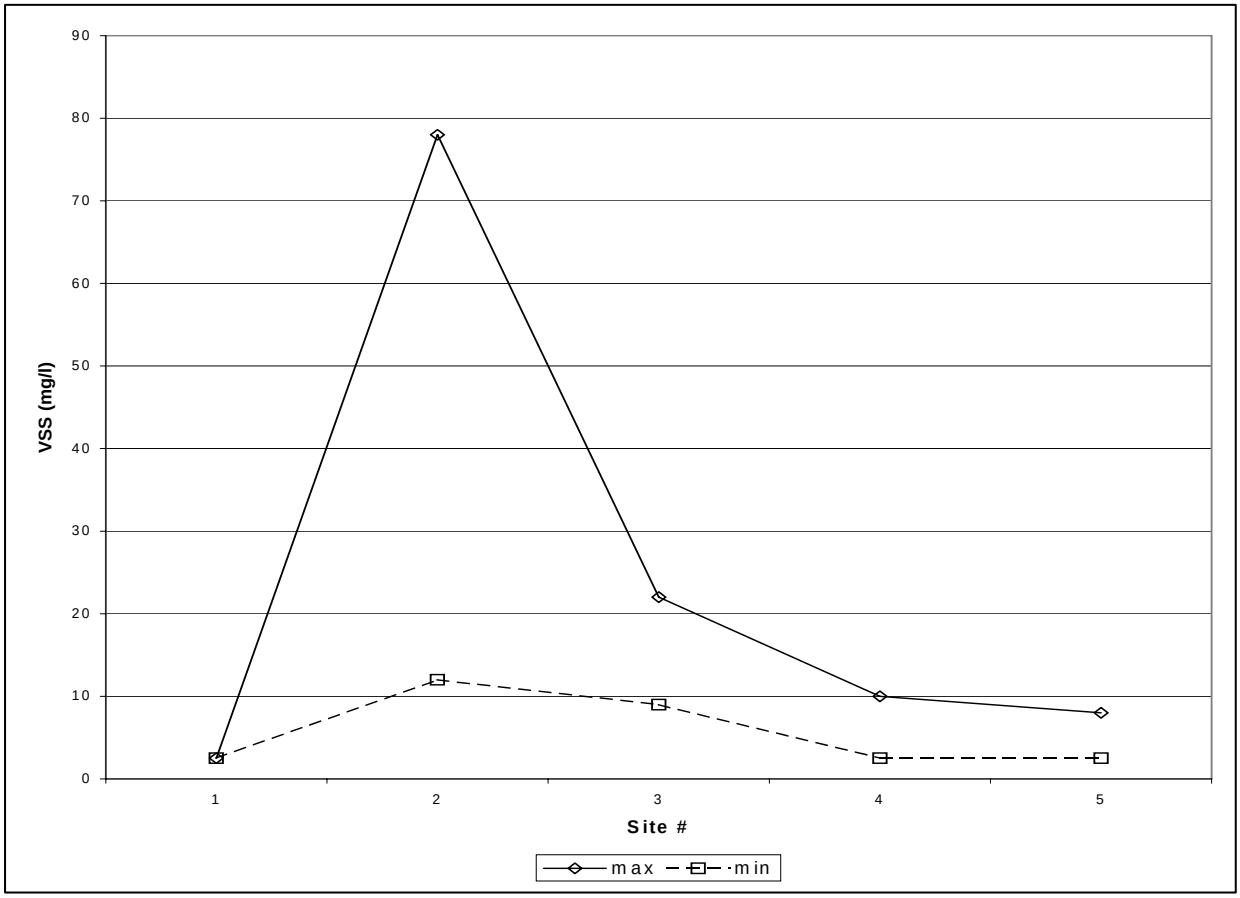
Forty-eight hour water quality studies in 2001 and 2003 showed low levels of DO in West Fork Sni-A-Bar Creek downstream from the Lake Lotawana Lagoon. DO in the creek is reduced by wastewater high in BOD and most aquatic organisms require high levels of oxygen to survive. Significant amounts of algae (VSS) were identified in the same stretch of the creek during 2001. Excessive algae requires oxygen at night and it can die off, requiring increased oxygen for bacterial decomposition. The algae can also settle to the bottom covering fish eggs and habitat for macroinvertebrates. Like all wastewater discharges in Missouri, this lagoon must meet the requirements of a discharge permit issued by the Missouri Department of Natural Resources. A Waste Load Allocation (WLA) has been calculated that gives the scientific basis for setting those limits. The Environmental Protection Agency (EPA) approved a TMDL for West Fork Sni-a-Bar on January 6, 2006. The City of Lake Lotawana is constructing a new advanced treatment facility that will reduce the BOD and VSS by 75 percent.

Figure 1. DO in West Fork Sni-A-Bar Creek from Stream Surveys in August 2001 and July 2003



Note: Since DO levels are higher in the afternoon, the morning measurements are used in the WLA. This is because they offer the greater level of water quality protection in the creek.

Figure 2: VSS in West Fork Sni-A-Bar from a Stream Survey in July, 2003



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